RAILWAY BOGIE

FIELD OF THE INVENTION

[0001] The invention relates to a railway bogie comprising at least one hydraulic spring having a housing being required for a functionality of the hydraulic spring and an axlebox.

BACKGROUND DISCUSSION

[0002] From UIC standard a bogie with helical springs is well known, whereby the axlebox suspension consists of helical springs in combination with friction damping. Thereby the springs rest on support arms integral with the lower part of the axlebox housing and are connected with the bogie frame using caps integral with the bogie frame for taking up the top of the springs.

[0003] US 2002-0089102 A1 discloses a hydraulic spring comprising a membrane. This document also discloses that the hydraulic spring is for use in rail vehicles especially as a primary spring.

[0004] Further the catalogue of the company ContiTech Luftfedersysteme GmbH in Hannover, Germany, "Air Spring Systems for Modem Rail Vehicles", printed and distributed in October 1998 discloses the use of hydraulic springs comprising a membrane in two-axle bogies.

[0005] One object of the present invention is to provide an improved railway bogie comprising at least an axlebox and a hydraulic spring, so that the railway bogie has a simplified build-up and is therewith cheaper to produce.

SUMMARY

[0006] According to one aspect, a railway bogie comprises at least one hydraulic spring having a housing required for operativeness of the hydraulic spring and an axlebox, wherein at least a part of the axlebox forms at least a part of the housing.

[0007] By the fact that an existing part of the axlebox is designed and used to form a part of the housing of the hydraulic spring, the number of components is reduced in total so that a lower fault liability and a more favorable cost position can be achieved.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0008] Further advantages, features and details of the invention are described with respect to one preferred embodiment of the invention with reference to the accompany drawings.

[0009] Figure 1 is a longitudinal cross section in the region of one wheel of a bogie.

[0010] Figure 2 is a sectional view along the line B-B of Figure 1.

DETAILED DESCRIPTION

[0011] Figure 1 shows a longitudinal cross section in the region of one wheel 2 of a bogie of the so-called Y 25 type, whereby the cut is directed along a plane defined by the axes of rotational symmetry of a first and second hydraulic spring. The pictured section of the bogie comprises an axlebox 10 with a rolling bearing 4

mounted in a middle region of the axlebox 10. The rolling bearing 4 supports one end of one of the two axles of the bogie.

[0012] A base of the axlebox 10 is extended to the left and the right side forming a cup shaped region 12 at each of the sides. Each of the hydraulic springs comprises a spring element 20, which is attached to each of the cup shaped regions 12 of the axlebox 10. A metallic centerpiece 26 is located in the centre of each of the spring elements 20.

[0013] These two centerpieces 26 are attached to one bridging adapter 50. Therefore the centerpieces 26 and the bridging adapter 50 have bores for connecting the centerpieces 26 with the bridging adapter 50 via two bolts 52 pictured uncut in Figure 1 and 2. In other embodiments, the bolts 52 can be integral parts of the centerpieces 26 or of the bridging adapter 50, or the centerpieces 26 can be connected to the bridging adapter 50 by any other connecting means.

[0014] The bridging adapter 50 is attached to a longeron of a frame 6 of the bogie. This longeron extends in a longitudinal direction parallel to the rails and is pictured uncut in Figure 1. Preferably the bridging adapter 50 is connected to the bogie frame 6 by welding.

[0015] In the following description, just the left cup shaped region 12 in connection with the left spring element 20 is described in detail, because the same applies to the right cup shaped region 12 in connection with the right spring element 20. Therefore Figure 2 shows a sectional view along the line B-B of Figure 1. The spring element 20 comprises sleeve shaped elastomeric elements 22 and intermediate sleeve shaped metallic elements 24 in an alternating succession,

whereby the elastomeric and the metallic elements 22 and 24 are connected by way of vulcanization. Also the centerpiece 26 is connected by way of vulcanization to its adjacent elastomeric element 22.

[0016] The spring element 20 is secured to the respective cup shaped region 12 of the axlebox 10 via a sealing ring 42, which is attached to the axlebox 10 via screws 44. In other embodiments the spring element 20 also can be directly vulcanized to the cup shaped region 12. The spring elements 20 forms together with the respective cup shaped region 12 of the axlebox 10 a volume for a fluid 30 particularly a hydraulic fluid. This volume is at least partly filled with the fluid 30. The centerpiece 26 is prolonged into the volume forming a plunger shaped region 28. Thereby at least a disk shaped region at the end of the plunger shaped region 28 is dipped into the fluid 30, so that this arrangement fulfils the function of a damper. The cup shaped region 12 of the axlebox 10 together with the respective spring element 20 and the fluid 30 form together the hydraulic spring.

[0017] In another embodiment of the invention, a hydraulic spring can be used, e.g. according to the already cited US 2002-0089102 A1, comprising a membrane instead of the plunger shaped section 28 of the centerpiece 26, whereby the cup shaped region 12 of the axlebox 10 is then also one part of the housing of the hydraulic spring.